

Client Profile:

Industry: Chemical Emulsion Plant
Location: USA
Facility Size: Multi-department production plant
Date: September 2024
Scope: Compressed air energy saving evaluation

**Customer scenario**

A major chemical emulsion plant running a 2,100 CFM compressed air system 24/7 year-round reached out to The Analysts due to rising energy costs, system reliability issues, and a lack of internal ownership of their air system. The plant had four compressors totalling 462 kW, and annual energy costs had ballooned to over \$320,000. Leadership needed answers, and results, without adding more compressors or making capital investments.

**Our Mission**

- Diagnose inefficiencies and hidden energy losses
- Identify opportunities to reduce pressure safely
- Improve system reliability and safety
- Deliver a clear path forward and establish internal ownership

**Our Deliverables**

- Full walk-through with plant engineering and maintenance
- Demand-side system assessment (volume, pressure, reliability, air quality)
- Leak load and pressure modelling
- Prioritized action plan for immediate, mid-term, and long-term savings
- Develop two potential savings scenarios for overall system improvements:
 - 1) One tailored for a limited budget, focusing on quick wins and essential upgrades.
 - 2) One designed for a larger budget, enabling deeper optimization and long-term impact.

Est. benefits:

Performance Report.

We prioritized 3 key implementations:

Set pressure in system	90 PSI (current set pressure)	45 PSI (pot. Set pressure)
Leak Program	\$29,044. -	\$ 16,596
Pressure Reduction & Control	\$ 0, -	\$153,000. -
Compressor Controls	\$ 16,000. -	\$ 9,000. -
<i>Pot. Electricity bill reduction</i>	<i>\$ 45,044. -</i>	<i>\$ 178,596. -</i>
<i>40% Efficiency Heat Recovery</i>	<i>\$ 149,000. -</i>	<i>\$ 86,000. -</i>
TOTAL POTENTIAL	\$ 194,044. -	\$ 264,596. -



Key Findings

- ✓ Numerous untagged leaks and misused fittings (e.g., Chicago couplings)
- ✓ Outdated labels, improperly sized safety valves, and high-pressure operation
- ✓ Moisture buildup due to sloped piping and dryer issues
- ✓ Improper hose bends, missing supports, and reliability risks
- ✓ Red rubber hoses and legacy infrastructure driving waste



Project results:

"We finally have can agreed roadmap to control pressure in our system and understand the potential we have in recovering waste heat. We can reduce risk, increase reliability and all without investing in more equipment."



About Us

The Analysts is a reliability-first consulting firm specializing in **holistic compressed air system audits, energy savings evaluations, leak detection surveys, process mapping, and system monitoring and controls**. We understand every step in your compressed air system - from the atmosphere it draws in, to the atmosphere it returns to.



Call us when compressed air is affecting your production, performance, or profitability.

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